3.3.11 TMDL'S and WLA'S and 303(d) – Interim Permitting

The wasteload allocations (WLA's) which are used to derive effluent limits may be derived on an individual permit basis or they may be determined by a basin TMDL allocation.

In the absence of a basin TMDL and the resultant WLA, the permit writer must do an individual WLA.

NO TMDL AND NO 303(d) LISTING – EXISTING DISCHARGE

Occasionally, the permit writer, in the course of renewing a permit, will have information that the receiving water concentration (background) at the point of discharge during critical condition does not meet the aquatic life or human health criteria and that the receiving water is not listed on the 303(d) list (http://www.ecy.wa.gov/programs/wq/303d/index.html).

The applicable federal regulations in this case are 40 CFR 122.44(d)(1)(i), (ii), (iii) and (vii).

(i) Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.

(ii) When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.

(iii) When the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant.

(vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that: (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards…

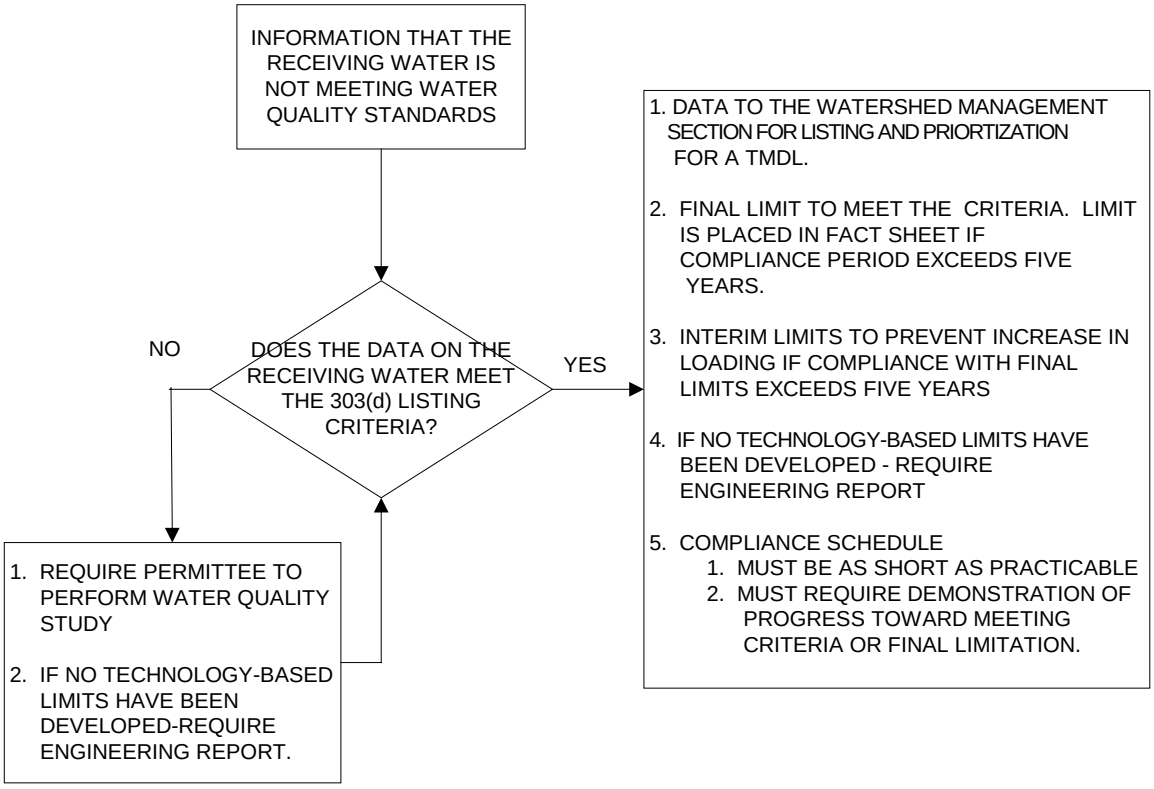
In these cases, where the excursion is documented with data that meets the criteria for 303(d) listing (see the 303(d) listing policy), the permit writer should develop interim effluent limits based on existing performance (no increase in loading) to be placed in the permit (see EPA 1991 and Chapter IV of this Manual for development of limits based on existing performance). These

interim limits are effective on the effective date of the permit. A final limit based on the water quality criteria is calculated and placed in the permit (with a compliance schedule) if compliance is expected in the term of the permit. The final limit is placed in the fact sheet if compliance with those limits is expected to exceed five years. The compliance schedule must be as short as practicable and must include specified required actions that demonstrate reasonable progress toward attainment of the final limit or water quality criteria. If technology-based limits have not been established for the pollutant the permit must also cause the permittee to investigate the feasibility and reasonableness of meeting the final limit with cost tests established for BCT or BAT. This is accomplished by requiring an engineering report completed in accordance with current Ecology guidance. In some cases, where the final limits are placed in the fact sheet, additional source control investigation may be productive and should be included in the permit.

The Watershed Management Section is given the water quality information on the water body. This data must be in Storet format. The water body will subsequently then be listed on the 303(d) list and prioritized for a TMDL.

If the data on the excursion does not meet the 303(d) listing criteria, the permittee should be required, usually by compliance order, to investigate receiving water quality to determine if the receiving water exceeds water quality standards at the time of critical condition. A quality assurance plan (QAPP) must be prepared by the permittee and approved by Ecology. The final data must be suitable for entry into Storet. No interim limits are necessary in this situation, however, if technology-based limitations have not been explored for the pollutant, the order should also include the requirement for an engineering report on treatment options and costs (see Ecology engineering report guidance). If the receiving water does show impairment, the decisions on final limits, interim limits and compliance schedules are the same as discussed above if the receiving water data shows impairment. Depending on the timing of the receipt of the data, the permit may be modified or adjusted at the next renewal. If the data shows no impairment and dilution is available then reasonable potential analysis and effluent limits are developed as discussed elsewhere in this chapter. The data from the receiving water is given to the Watershed Section for 303(d) listing.

Figure VI-4. Discharges to water bodies not meeting standards but not yet listed on 303(d).



NO TMDL – 303(d) LISTED – EXISTING DISCHARGE

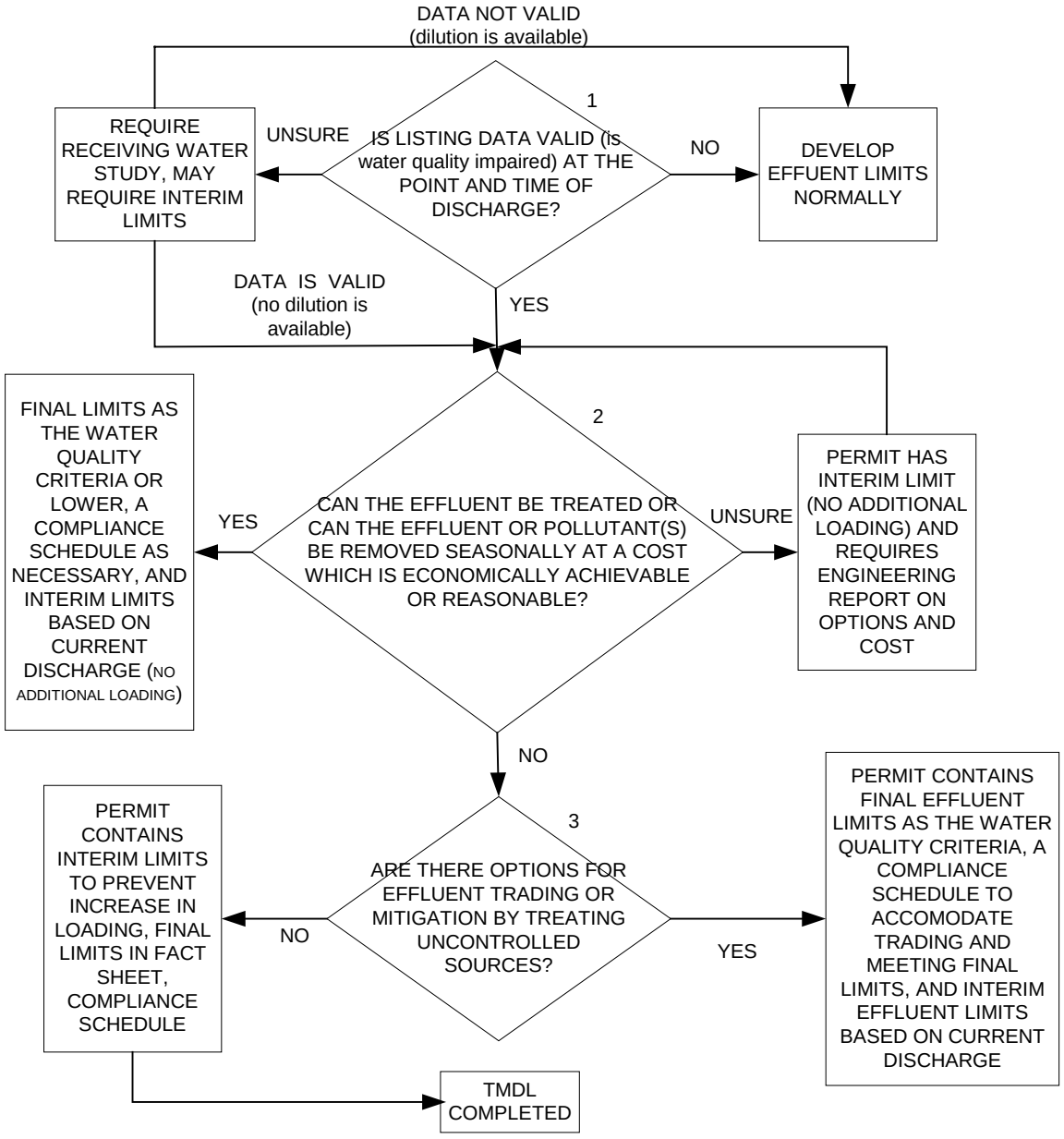
It's more likely that a permit writer will be renewing a permit and discover the receiving water body is on the 303(d) list. The applicable federal regulations in this case are the same as the previous case.

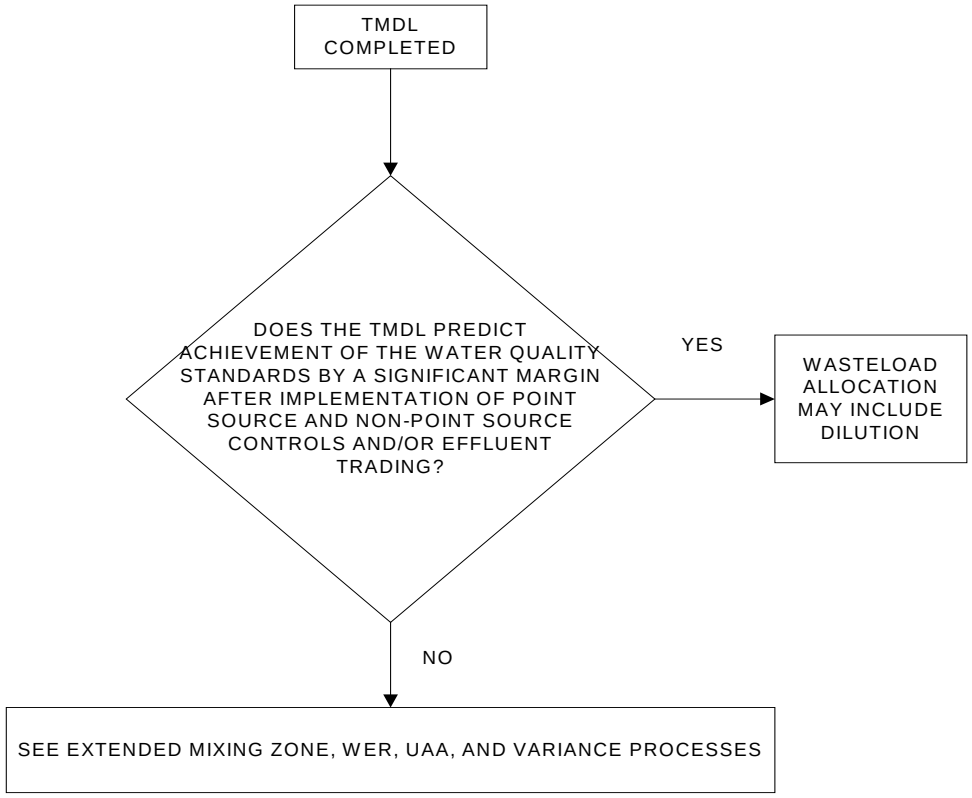
If the pollutant that caused the listing is not present in the discharge no limit is required.

If the pollutant is present in the discharge and the TMDL is in progress, the permit writer may defer any water quality-based limits on the pollutant until the TMDL is completed and a WLA is assigned. When the WLA is assigned the permit writer may modify the permit or incorporate the WLA at the next reissuance, depending on timing.

If the pollutant is present in the discharge and the TMDL is not started the options are given below in Figure VI-5 and the text that follows.

Figure VI-5. Permitting discharges to a 303(d) listed waterbody with no TMDL. If an AKART analysis has not been completed for the pollutants at issue, decision boxes 1 and 2 are conducted concurrently.





Decision box 1 (Is Listing Data Valid?)– Non-conservative Pollutants.
The permit writer must make a judgement, based on the circumstances of the 303(d) data on how to proceed with the listed pollutant in the effluent. This judgement is influenced proximity of the listed section to the point of discharge. The judgement is also influenced by the type of pollutant and whether it is a conservative or non-conservative pollutant. Non-conservative pollutants are pollutants that degrade in the receiving water. Some typical non-conservative pollutants are BOD, ammonia nitrogen, and fecal coliform.

If the discharge is to a listed section the receiving water is impaired. If the listing is for one station at some distance from the point of discharge then there may be some uncertainty about the water quality at the point of discharge for non-conservative pollutants. If there are station listings above and below the point of discharge or one station close to the point of discharge then there is more certainty that the water quality does not meet the criteria at the point of discharge. Another judgement must be made regarding the degradation rate of the pollutant in relation to the point of discharge and the listing station(s). Some volatile pollutants may degrade in a matter of hours in a turbulent river but others such as BOD may not reach full effect on dissolved oxygen until several days travel time down-river. A permit writer who is unsure of the dynamics of the water quality at the point of discharge may wish to consult with someone in the EA Program.

Decision box 1 (Is Listing Data Valid?)– Conservative Pollutants

Conservative pollutants do not degrade in the receiving water, however, they may change form or their media association. Metals are a common conservative pollutant. They may be in a bound or dissolved form in the water column or go to the sediments. The decision-making process is much the same as for non-conservative pollutants except that if the listing station is downstream of the discharge, the effluent is assumed to be contributing to the impairment.

A factor of uncertainty with metals is the correctness of the data if the receiving water or effluent data wasn't collected using ultra-clean sampling and analysis. In this case, the concentrations of metals in the receiving water and the effluent should be confirmed using clean sampling and analytical techniques.

Decision box 1 (Is Listing Data Valid?)– Human Health Pollutants

The listing for human health pollutants may be made on the basis of water column concentration or on the basis of fish tissue analysis. If the listing is on the basis of resident fish tissue concentration above or below the point of discharge assume the effluent is contributing to the impairment (assuming the pollutant is present in the effluent). If the listing is on the basis of water column concentration the decision criteria given above for other pollutants are applicable.

Decision box 1 (Is Listing Data Valid?) - Water Quality Studies

If there is some uncertainty about the conditions at the point of discharge and whether dilution is available, the permit writer may require a receiving water study. A water quality-based effluent limit is not always required in the permit that requires the study (see the following discussion on timing), but an effluent limit based on demonstrated performance should be placed in the permit. This limits the discharger to their current loading until the uncertainty about the receiving water condition is resolved.

Permit conditions which require receiving water studies should require that the study plan be submitted as a QAPP to be approved by Ecology before the study proceeds. The permit should require the data from the study be submitted in a Storet format. The permit should also require that the critical conditions be determined for the 10 year critical condition. This can be done for some parameters by correlating the site data to a long-term monitoring station. For other parameters where long-term data is not available, the techniques for estimating 90^{th} (or 10^{th}) percentile values from a small data set are given in Section 3.3.11 of this chapter, in appendix 6, and in the references cited in those sections.

If receiving water data indicates there is no dilution available for part or all of the year, then other options can be explored as indicated on the flow chart. If no dilution is available, however, a final effluent limitation of the criteria concentration (amount) is placed in the permit if compliance is expected within five years. The final limit is placed in the fact sheet if compliance is longer than five years and an interim limit based on existing performance is placed in the permit. A compliance schedule may be authorized for meeting the final limit but it must be as short as possible and must require demonstration of reasonable progress toward meeting the water quality criteria or final limit.

Decision box 2. Once the water quality impairment is confirmed or verified the following principle is in effect:

- There can be no additional loading or higher concentration allowed for the listed pollutants at times of impairment until the TMDL is completed and it shows dilution available at full implementation of the TMDL.

Ceasing discharge to surface waters may be an option for some small dischargers especially for summer discharges with high temperatures and low dilution. Other options include using the wastewater for irrigation or simply storing the wastewater. In some cases there may be opportunities for seasonal pollutant removal. These options are explored in an engineering report required as part of the compliance schedule if these options were not originally explored in the AKART analysis. If seasonal removal appears feasible for a facility, the final effluent limit should be either:

the water quality criteria or
no discharge during critical period.

The final limit is placed in the permit, if achievable in five years, or in the fact sheet, if a longer period is required for compliance. If longer than five years, an interim limit, based on existing performance, is placed in the permit. For some pollutants, treatment may be available that is within the financial capability of the facility. If the treatment option is used the permit should contain a final effluent limitation of the criteria concentration (amount) and an interim limit based on existing performance or a compliance schedule to meet final limitations.

Decision box 3. For some limited number of pollutants and discharges there may be some options for pollutant trading in which a discharger would pay some upstream point source or non-point source for treatment in order to gain some allowable dilution at the dischargers location. If this option is used, the permit should contain a final effluent limitation of the criteria concentration (amount) and an interim limit based on existing performance or a compliance schedule to meet final limitations. If this option is considered, there must be available data on the upstream source that would be used for the trade. This option is administratively very time consuming.

Timing for Decision Boxes 1, 2, and 3. The permit language requiring examination of the options in boxes 1, 2, and 3 in Figure VI-5 may be sequential within one permit term depending on the size and priority of the discharge. For example, a permit for a large industrial source which is being required to do a water quality study in the initial years of the permit, should also require an engineering report for treatment options in the later years of the permit if the studies show violations of water quality standards. In other cases, such as small municipalities, which may require several years to fund a water quality study, the initial permit may only require the water quality study. The next permit would then require the engineering report.

NEW DISCHARGES TO LISTED WATERBODIES

No TMDL

The applicable regulation is 122.4(i)
Sec. 122.4 Prohibitions. *No permit may be issued:*
i) To a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. …

A new discharge to a listed waterbody can not be allowed (issuance of permit is prohibited) if the discharge will cause or contribute to a violation of water quality standards.

A permit applicant may be allowed to demonstrate that the listed water body has the ability to accept additional loading at the proposed point of discharge without impairment or increased impairment to the waterbody.

In some cases a new discharger may be allowed to discharge listed pollutants by trading effluent reduction (effluent trading) or discharging seasonally. Effluent trading may entail treating a previously untreated but quantified pollutant source, such as a stormwater outfall such that the net effect of the new discharge is zero. Water reuse is encouraged by Ecology and it may be a good option for new dischargers to avoid discharge during the critical condition, typically the low flow period.

TMDL Completed

The applicable regulation is 122.4(i)
…The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) (BPT) and 301(b)(1)(B) (Secondary treatment) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that: (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. The Director may waive the submission of information by the new source or new discharger required by paragraph (i) of this section if the Director determines that the Director already has adequate information to evaluate the request. An explanation of the development of limitations to meet the criteria of this paragraph (i)(2) is to be included in the fact sheet to the permit under Sec. 124.56(b)(1) of this chapter.

A new source or new discharger proposing to discharge to a listed waterbody for which a TMDL has been completed and WLA's assigned may obtain a permit for discharge into a water segment which does not meet applicable water quality standards by submitting information demonstrating that there is sufficient loading capacity remaining in the waste load allocations for the stream

segment to accommodate the new discharge and that existing dischargers to that segment are subject to compliance schedules designed to bring the segment into compliance with the applicable water quality standards.

GENERAL PERMITS

General permits are issued under the same laws and regulations as individual permits, however, Ecology is unable to invest the time necessary to make the site-specific decisions regarding the water quality at the point of discharge for the large number of permittees wanting coverage under general permits. Therefore, general permits will contain language which says, "The permittee's discharge must not cause or contribute to an excursion of the State's water quality standards, including the State's narrative criteria for water quality [40 CFR 122.44(d)(1)(i)]. If you discharge a pollutant which is named as a pollutant causing a water quality standards' violation at the location named on the State's 303(d) list you shall not discharge that pollutant at a concentration above the State's water quality standard". The application for coverage under the General Permit will ask if the discharge is to a listed waterbody and will provide information for the applicant to determine if they will be discharging to a listed waterbody. When possible, the pollutants specific to the type of discharge covered by the general permit will be identified in the permit application materials. If the permit applicant indicates they will be discharging a named pollutant to listed waterbody at or near the impaired section, the applicant must receive an individual permit or the general permit must include language quoted above. Existing dischargers may receive a compliance schedule.

TMDL COMPLETED

If the TMDL has been completed at the location, the steps for compliance may be similar to those given above especially when the WLA doesn't allow for any significant dilution. In cases where a point source WLA assumes some dilution will be available the compliance period may be extended to be equal to any non-point compliance period for the Load Allocation.

NATURAL CONDITIONS

A determination that natural conditions in a waterbody exceeded water quality standards can only be made from: 1) data from the waterbody prior to any human disturbance in the watershed, 2) correlation of the waterbody to a nearby undisturbed waterbody, or 3) a model of the waterbody and watershed developed as part of a TMDL.

In some cases the permittee or applicant may try to demonstrate that conditions in the waterbody were not meeting standards before the addition of wastewater and therefore are natural

conditions or natural background levels. Natural conditions are defined in the Water Quality Standards as the surface water quality that was present before any human-caused pollution (WAC 173-201A-020). Human-caused pollution includes non-point sources such as timber harvesting and farming. Therefore, unless data is available from the watershed before there was any human disturbance or from a nearby less disturbed watershed showing exceedance of standards, a determination of natural conditions should not be made by the permit writer. An estimate of natural conditions can be made by modeling during the TMDL.